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Lieutenant Governor

# State of Utah

## DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER  
Executive Director

### Division of Oil, Gas and Mining

JOHN R. BAZA  
Division Director

February 4, 2013

Lon Thomas  
Star Stone Quarries  
4040 South 300 West  
Salt Lake City, Utah 84107

Subject: First Review of Amended Notice of Intention to Commence Large Mining Operations, Star Stone Quarries, Heber Quarry, M/051/0001, Wasatch County, Utah

Dear Mr. Thomas:

The Division of Oil, Gas and Mining has reviewed the referenced amended Notice of Intention to Commence Large Mining Operations (NOI) which was received November 6, 2012. The attached comments will need to be addressed before the amendment can be incorporated into the plan.

The comments are listed under the applicable Minerals Rule heading; please format your response in a similar fashion. Please address only those items requested in the attached technical review by sending replacement pages of the original mining notice using redline and strikeout text. After the notice is determined technically complete, the Division will ask that you submit two clean copies of the complete and corrected plan. Upon final approval, one copy stamped "approved" will be returned for your records.

Please submit your response to this review by April 1, 2013.

The Division will suspend further review until your response is received. If you have any questions in this regard please contact me at 801-538-5261 or Leslie Heppler, at 801-538-5257. Thank you for your cooperation in submitting the revised NOI.

Sincerely,

Paul B. Baker  
Minerals Program Manager

PBB: lah: eb

Attachment: Review

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**FIRST REVIEW OF AMENDMENT NOTICE OF INTENTION  
TO COMMENCE LARGE MINING OPERATIONS**

**Star Stone Quarries  
Heber Quarry**

**M/051/0001  
February 4, 2013**

**General Comments:**

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
1	General	Submittal should be formatted to easily incorporate additional revisions and amendments.	lah	
2	General	Additional comments from the Division can be generated in the future based on submittals received in the future; every attempt should be made to submit a complete NOI the first time around.	lah	
3	General	The permit number has been updated. Your new permit number is M/051/0001. Please change throughout the document; include at the top of page 1.	lah	
4	All	English standard for slope call outs is *H:1V versus the metric standard of *V:1H. Please be consistent throughout the NOI.	lah	
5	All	In several places the plan uses the phrase "natural slopes." The use of this term is confusing and cannot be used to define both the pre- and post-mining contours. The correct terminology for pre-mining is "original topographic slopes." The correct terminology for post mining is "regraded topographic slopes." This needs to be clarified in the permit.	lah	
6		When the site was first permitted, several permit conditions were required as a result of public comments received by the Division. These conditions have not been incorporated into the amended NOI, including sediment control structures (catchment basins), required signs, and blasting protocols. These plans need to be incorporated in the appropriate sections of the NOI.	lk	
7	Appendix (es)	No appendices were included in the submittal. The NOI should be a stand-alone document that include the appendices. Comments can be generated in the future, based on the appendices to be submitted.	lah	

**R647-4-101 - Filing Requirements and Review Procedures**

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
8	Page 20	Please sign the NOI	lah	

**R647-4-104 - Operator Information and Surface and Mineral Ownership**

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
9	Page 1 3. and 4.	Not required by rule, but adding a valid email address to the plan will allow for email alerts in the future	lah	
10	Page 1 6.	Add South ½ to the legal description.	lah	
11	Page 2 10.	The Division's files contain three documents from June 2000, none of which includes contact information for adjacent property owners. Please add a small table in the NOI of contact information associated with Map #1.	lah	

#### 105.1 - Topographic base map, boundaries, pre-act disturbance

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
12	Map 2	The imagery base map is out of date. Include the latest disturbance image (from Bing Maps or Google Earth or other source) so disturbance boundary will not be out of date before the next periodic plan review.	lah	
13	Page 2 5.	The Division has yet to find appendix #1 noted on page 5. Please include a Table of Contents with the NOI and note the location of all appendixes. The NOI should be a standalone document.	lah	

#### 105.2 - Surface facilities map

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
14	Map 3	Identify the following items on this map, or on a separate hydrologic map that lie at least within 500 feet of the quarry boundary: perennial streams, springs and other bodies of water; water wells; drainage control structures, such as sediment ponds/traps, diversion channels, culverts (including size); and other hydrologic features, like watershed boundaries and intermittent or ephemeral streams. A pond and the Lake Creek stream channel are visible but unidentified on aerial photos. The Division of Water Rights' website indicates that multiple wells lie within 500 feet of the operation	PNB	

#### 105.3 - Drawings or Cross Sections (slopes, roads, pads, etc.)

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
15	omission	Submit a geologic map as per 105.3.16.	lah	
16	Map 4 and 6	Please change "Average 45° Highwall" to "Highwall – 45 degree max" or something comparable. Without a variance, the highwall must not be steeper than 1H:1V.	lah	
17	Map 4	Page 4 of the plan contains a discussion about how waste will be minimized, yet Map 4, "Areas Proposed to be Developed," indicates half of the mine site will be used for access and storage areas and for waste dumps. This appears to be a very large area. Please clarify.	lah	



Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
18	Page 3 Para. 1.	Per rule, final highwall slopes are not to exceed 1H:1V. Please rewrite this paragraph to comply with the rules. A geotechnical report is required for a variance, and this report would need to be stamped by the engineer of record.	lah	
19	Maps 3.1.a & b, and 3.2a & b	The scales noted in the legend do not match either the horizontal or vertical scale of the cross section(s). Please correct. The Division recommends using a bar scale.	lah	
20	Maps 3.1.a & b, and 3.2a & b	More labels are needed. Many of the contours indicate over-steepened slopes. Fill slopes must be stable and should not exceed 2H:1V. A good rule of thumb for the angle of fill slopes before they are pushed down for reclamation is 37 degrees (angle of repose).	lah	
21	Map 4	Add the access road to the legend.	lah	
22	Maps 4, 5, and 6	Until corrected cross sections have been received by the Division only limited comments can be written.	lah	
23	Map 5	Remove the word "final" on the legend, as the map is "Reclamation-5yr."	lah	
24	Map 5	All rock slopes steeper than 45 degrees or 1H:1V will need a stability report sign by the geotechnical engineer of record, if the slopes are to be left after final reclamation. All slopes that have been temporarily over steepened will need to be included in the reclamation bond.	lah	
25	Map 5	Please clarify which roads are to be reclaimed. It is noted which roads are to be left, but not which will be reclaimed. Please define the widths of roads left.	lah	
26	Map 6	There is inadequate topsoil to spread over the area shown on Map 6 as "Regrade/Topsoil/Broadcast seeded."	lah	

#### 105.4 - Photographs

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
27		No photos have been included. The Division recommends including photographs.	lah	

#### R647-4-106 - Operation Plan

##### General Operation Comments

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
28	Page 4 Para 3	Minor amounts of rock can be included in the topsoil stockpiles, as it helps the fiction angle of the soil. Growth medium stockpiles should be placed in a location suitable for reclamation, to reduce bond costs.	lah	

#### 106.3 - Estimated acreages disturbed, reclaimed, annually

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
29	Page 5	Roads need to be included in totals in each case presented on page 5.	lah	

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
30	Page 5	Estimated acres shown on page 5 need to be tied to maps. The classification breakdowns should include areas currently disturbed, the 5-year period estimate, and the projection of final reclamation.	lah	

#### 106.4 - Nature of materials mined, waste and estimated tonnages

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
31	Page 6	"Vein dip angle" is incorrect terminology; change to "orientation of bedding," include the bearing and plunge	lah	
32	Page 6	Please correct the table that shows only 0.2 ft of overburden. Three paragraphs below the table, overburden is defined as topsoil, subsoil and fine rock. With this being the case, it is impossible to salvage an average of nine inches (0.75 feet) of topsoil on the areas planned for disturbance over during the next five years.	lk	

#### 106.5 - Existing soil types, location, amount

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
33	Page 7	The plans for the borrow area have been removed. The borrow area was required originally due to the lack of soil salvaging. This borrow area needs to remain part of the NOI until it is demonstrated that there is sufficient salvaged topsoil (or suitable substitute material) stockpiled on site. The soil lab analysis that would help determine whether fines are suitable was not provided with this submittal.	lk	
34	omitted	Please provide the volume of topsoil in each stockpile	lk	
35	Page 11	The NOI says, "... dump fines and waste material, suitable for reclamation will be stored ... at a location to be determined." Map 4 purports to show waste storage areas, but if the locations are to be determined, are the locations shown on Map 4 conceptual? What criteria will be used to determine whether dump fines and waste material will be suitable? Assuming that these materials may be suitable, the locations for the stockpiles need to be shown on a map now, not to be determined later.  The plan to use composted manure has been replaced with using mulch. Before the Division can approve this change, please specify the type of mulch to be used and the rate of application. Untreated mulches, such as hay or straw, have several drawbacks, including the introduction of weeds, including noxious weeds, and the depletion of critical nutrients for vegetation as the straw or hay decays. This may require additional application of fertilizer and the need for weed control plans. Properly composted manure or biosolids not only provide the organic mater needed, but also the microbes that help to build a soil. They are considered weed free.	lk	

#### 106.7 - Existing vegetation - species and amount

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
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First Review  
Page 6 of 10  
M/051/0001  
February 4, 2013

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
36	Pages 8-9	Please remove all but the last two paragraphs under Section 106.7. The first three paragraphs of this section are confusing and irrelevant to the success standard obtained in the second study. Since the vegetation survey was not included with the NOI, please provide a list of the species growing at the site.	lk	

#### **106.8 - Depth to groundwater, extent of overburden, geology**

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
37	Page 9	Include information on the elevation of the final quarry floor and the elevation of water in the surrounding wells.	lah	

#### **106.9 - Location & size of ore, waste, tailings, ponds**

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
38	Omission	Permit conditions required the construction and maintenance of two sediment catch basins. These need to be included as part of the amended NOI and shown on a map.	lk	
39	Page 10 para. 4	Stockpiles are required to be included in the surety bond.	lah	

#### **R647-4-107 - Operation Practices**

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
40	Page 10	Commit in the text to follow MSHA rules and regulations inside the mine boundary.	lah	
41	Page 11	Note in the text the existing sediment ponds/traps that have been constructed on the site, along with the water bars.	pnb	

#### **R647-4-109 - Impact Assessment**

##### **109.1 - Impacts to surface & groundwater systems**

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
42	Page 12	The first paragraph in the impact statement says there are people living ¼ mile away. There are houses within 600 feet of the operations, much less than ¼ mile. Please provide the potential impacts from blasting and the measures required to mitigate the impacts (refer to the permit conditions regarding blasting protocols).	lk	
43	Page 13	As written in the text, "A well drilled on an adjacent property will be used to supply the operation." The well on adjacent property needs to be included as part of the disturbed area. It needs to be plugged, and the plugging cost must be included as part of the reclamation cost estimate.	lah	
44	Page 13	Identify Lake Creek in the discussion as perennial, intermittent, or ephemeral.	pnb	



Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
45	Page 13	It is reported that past storm events deposited sediments from the permit area on the public road, and may have reached Lake Creek. Discuss mining impacts of sedimentation in the creek.	pnb	

#### 109.2 - Impacts to threatened & endangered wildlife/habitat

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
46	Page 13	Include a list of endangered species for Wasatch county. Based on information from the Division of Wildlife Resources' web site, these species are Ute ladies' tresses, clay phacelia, and Cana lynx. Include a short discussion in the text explaining why these species would not be affected by the operation.	lah	

#### 109.3 - Impacts on existing soils resources

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
47	Page 13	Include a commitment in the text to include the scrub oak in the topsoil stockpiles.	lah	

#### 109.4 - Slope stability, erosion control, air quality, safety

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
48	Page 14	An engineering study is needed for a variance on any slope left steeper than 1H:1V.	lah	
49	Page 14	A storm water runoff plan is needed for the mining operation. Consider evaluating storm water runoff for the entire area projected to be disturbed by long-term mining.	lah, pnb	
50	Page 14	It is reported that past storm events deposited sediments from the permit area on the public road, requiring cleanup, and that sediments may have reached Lake Creek. Discuss the effects of possible sedimentation on the road and creek.	pnb	
51	Page 14	Under 109.4, include a discussion of dust control methods to be used. Include text on watering roads and dust related to blasting.	lah	
52	Page 14	It is not clear if the operator will be blasting during operations, but the reclamation plan notes that blasting will be done. Please include in the NOI the public safety considerations that will be used when blasting is to occur. It was noted at the last site visit that both a blast hole rig and air compressor were on site.	lah	

#### 109.5 - Actions to mitigate any impacts

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
53	Omission	Discuss actions to prevent and/or mitigate sedimentation effects. Refer to the existing sediment basins/traps, berms, water bars, road drainage ditch, etc, including their required maintenance. Incorporate the results of the storm water runoff plan.	pnb	
54	Page 14	Under 109.5 include a statement that no blasting will be done during mining if that is the intent.	lah	

First Review  
Page 8 of 10  
M/051/0001  
February 4, 2013

## **R647-4-110 - Reclamation Plan**

### **110.1 - Current & post mining land use**

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
55	Page 14	The plan and reclamation surety must show that the site will be restored to the pre-mining land uses of grazing and wildlife habitat; however, the Division can approve an alternate land use at the time of reclamation if a single family home is still desired and if appropriate zoning and building permits are in place. Please modify the land use section of the plan to indicate the site will be restored to the premining land uses but that an alternate use may be sought at the time of reclamation.	lk	

### **110.2 - Roads, highwalls, slopes, drainages, pits, etc., reclaimed**

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
56	Page 15	The term "pit" (also elsewhere in the plan) implies there will be a depression, but the plan indicates mining will be done in benches. The bond also reflects mining in benches. If the mining was to be done in a pit or depression, the bond cost would increase. Please use a term other than pit (mine, quarry, etc.).	lah	
57	Page 15	Please note comment 4 and 5 above in regards to page 15	lah	
58	Page 15 B.1.	Include in the Appendix the documents relating to Blasting for Reclamation, and refer in the text to the Appendix.	lah	
59	Page 12	Section 107.6 says a section of road will be reclaimed within the next five years as identified on Map 4. There is no road identified on Map 4 for reclamation.	lk	
60	Page 15	The slopes as measured on the topographic map of the quarry area are 2H:1V on the west side of the ridge and 3H:1V on the east side of the ridge. No slopes measured steeper than 1H:1V. Therefore without a stability analysis, all highwall slopes will need to be at a 1H:1V slope or less.	lk	
61	Page 15	In Section B.2, the plan says slopes will be at a greater angle than the original slope. Then it says waste slopes will be sloped to 1V:2H or less where the <i>natural slope is 1v:2h</i> . This is the same slope. Please modify the verbiage in this section of the plan. Also, please provide the depth of cover for both the subsoil/fine rock and the topsoil that will be placed on reclaimed waste dumps.	lk	
62	Page 16, Section 110.2, final paragraph	Please provide the depth of fine material and topsoil to be used to reclaim quarry floors.	lk	
63	Page 15	Discuss reclamation plans for sediment ponds/traps and other drainage control structures (such as culverts).	pnb	
64	Page 15	The NOI states: "Pit and roads will be sloped so ponding will not occur." With this, the plan needs to show how sedimentation will be controlled which could potentially be done by grading quarry slopes to create internal drainage.	pnb	
65	Page 15	The Division suggests creating a localized sediment catchment basin on the uppermost level of the mine, at the topographic low of the bench level.	lah	

### **110.3 - Description of facilities to be left (post mining use)**



First Review  
Page 9 of 10  
M/051/0001  
February 4, 2013

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
676	Page 16	Include in the description the width of the access road to be left.	lah	
67	Page 16	Please refer to comments made under R647-4-110.1 regarding the residential use.	lk	

#### **110.5 - Revegetation planting program**

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
68	Page 16-17	There is no justification provided to reduce the topsoil replacement depth from six to three inches. Please revise these plans to replace topsoil at a minimum depth of six inches.	lk	
69	Page 17	The species for reclamation are acceptable, but the seeding rates for some species could be reduced. Please contact the Division to discuss this issue.	lk	
70	Page 17	What criteria will be used to determine if fertilizer is needed? It was previously determined that organic matter was low. The use of composted manure was to correct this deficiency. How will organic matter be increased if composted manure is not to be used, especially in the fines?	lk	

#### **R647-4-111 – Reclamation Practices**

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
71	Page 18	111.5 Please see comments listed above.	lah	
72	Page 18	111.6 Please see comments above regarding regraded slopes and slope angles.	lah	
73	Page 19	111.8 Please see comments above relating to width of access road to be left as a reclamation practice.	lah	

#### **R647-4-112 – Variance**

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
74		No variances have been requested, but a variance is needed if slopes are to be left steeper than 1H:1V (as noted above).	lah	

#### **R647-4-113 – Surety**

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
75	Page 15	The plan says highwalls will be blasted down at reclamation. Please include blasting costs in the reclamation cost estimate.	whw	
76	Demolition costs	The Demolition cost estimate shows a general laborer. However, the cost associated with removing facilities will include transporting them off site and disposal in a State approved facility. Please include those costs.	whw	

First Review  
Page 10 of 10  
M/051/0001  
February 4, 2013

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
77	Earthwork	The earthwork costs were based on BLM's SCRC. Please include supporting data, such as input and output.	whw	
78	Topsoil	The plan for spreading soil shows that only a dozer will be used except for 600 cy. Dozers are usually not used to transport material from stockpiles unless the distance is only a few hundred feet. Please include cost to transport material from stockpiles to the site and the cost of spreading material on site.	whw	